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UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF CALIFORNIA
SAN FRANCISCO DIVISION

APPLE COMPUTER, INC.,	§
Plaintiff/Counterdefendant,	§ CASE NO. C06-00019 MHP
	§
v.	§ DECLARATION OF BRIAN BERSHAD
	§
BURST.COM, INC.,	§
Defendant/Counterclaimant.	§

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DECLARATION OF BRIAN BERSHAD
Case No. C06-00019 MHP
712530v1/009350

1   I, Brian Bershad, declare:

2   1.   I am a Professor in the Computer Science and Electrical Engineering Department

3   at the University of Washington. I received my Bachelor's Degree in Electrical Engineering and

4   Computer Science in 1986 from the University of California at Berkeley. I received my M.S.

5   degree (1989) and my Ph.D. (1990) in Computer Science from the University of Washington. I

6   have been retained as a consulting expert in this case by Susman Godfrey LLP on behalf of

7   Burst.com, Inc. ("Burst"). I have personal knowledge of the facts stated in this Declaration and,

8   if called upon, could and would testify competently to those facts. I also have reviewed the

9   "Declaration of Lou Brucculeri Re: Brian Bershad" and my responses to the statements in his

10   declaration are set forth below.

11   2.   In January 2005, I was retained by Wong, Cabello, Lutsch, Rutherford &

12   Brucculeri, LLP ("Wong Cabello") to perform consulting services on behalf of Apple Computer,

13   Inc. ("Apple") in relation to patent infringement claims asserted against Apple by Gobeli

14   Research Limited (the "Gobeli engagement"). During the course of the engagement, I did not

15   meet or speak to any Apple employees. All of my contacts regarding the Gobeli engagement

16   were with Wong Cabello attorneys Lou Brucculeri and Coe Miles. I provided intermittent

17   services to them until December 2005. My records for the Gobeli engagement reflect 50 hours

18   of work, although some of those hours represent monthly minimums for months in which I

19   worked fewer than the three-hour monthly minimum amount set forth in the engagement

20   agreement. My actual time spent on the Gobeli engagement was at least 29 hours, but less than

21   50 hours.

22   3.   The Gobeli patent, U.S. Patent No. 5418968, claims a "System and Method for

23   Controlling Interrupt Processing." As I understood the case at the time of my engagement, the

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DECLARATION OF BRIAN BERSHAD
Case No. C06-00019 MHP
712530v1/009350

1   only Apple product that was accused of infringement was the Mac Operating System (Mac OS

2   X). To the best of my knowledge, the only accused technology was the portion of the Mac OS

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     that handles interrupts, which are signals sent by a device to the computer to notify the operating
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     system that the device needs attention. This technology is part of the core of Mac OS X, which
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6   Apple   describes   on   its   website   as   an   "open   source   core."   *See*

7   http://developer.apple.com/opensource/index.html.   Apple makes this open source software

8   available for download on its public website. In other words, the allegedly infringing piece of

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     the Mac OS that was at issue in the Gobeli case, at least insofar as my role in the case was
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     concerned, was non-confidential open source software. The only Apple technology that I
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12   reviewed for the Gobeli engagement was material that I downloaded from Apple's public

13   website. This material is available for download even today from Apple's public website. See

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     http://www.opensource.apple.com/darwinsource/images/darwinppc-801.cdr.gz.   Because the
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     material I was asked to review was publicly available, I received no confidential technology
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     from Wong Cabello or Apple at all.
17
18   4.   I performed the following services for the two Wong Cabello attorneys. I

19   consulted with them on the Gobeli patent and a paper that I published in 1991 on the subject of

20   interrupt handling, and I examined the aforementioned open source code for Mac OS X, which

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     was based in part on a publicly available operating system named Mach that I had worked on
22
     while I was a junior faculty member at Carnegie Mellon University and had discussed in the
23
24   paper I published in 1991. Those tasks consumed the bulk of my time on the Gobeli

25   engagement. In addition, I consulted with them on claim terms and the court's claim

26   construction ruling in the Gobeli case. All of my communications on these subjects were with

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     the two Wong Cabello attorneys and nobody else.
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DECLARATION OF BRIAN BERSHAD
Case No. C06-00019 MHP
712530v1/009350

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5.   I have reviewed paragraph 3 of Mr. Brucculeri's declaration. Mr. Brucculeri is correct that I agreed as part of the Gobeli engagement that I would maintain the confidentiality of conversations with counsel. I have honored the confidentiality provision of my engagement agreement and I reaffirm that I will continue to do so. I agree that the confidentiality restriction would apply to any confidential Apple technology disclosed to me during the Gobeli engagement, but no such disclosures were made to me.

6.   I have reviewed the statement in paragraph 4 of Mr. Brucculeri's declaration, in which he asserts that it was necessary to disclose to me "confidential details about the functionality of Apple products." This statement is absolutely incorrect. (It may be that Mr. Brucculeri did not fully understand that the Apple technology at issue was public and non-confidential.) I received no confidential technical information about Apple products or technology whatsoever. I understand that Mr. Brucculeri has acknowledged that I received no written documents containing Apple's confidential technical information. In addition, I received no such information in oral form. In fact, there was no need for me to know anything confidential about Apple technology for the Gobeli engagement because the relevant source code of the accused product was publicly available.

7.   Mr. Brucculeri also states in paragraph 4 of his declaration that "some or all" of our conversations "concerned Apple's claim construction and invalidity strategies and potential positions, and how those strategies or potential positions related to Apple's accused products." While we had some discussions about the meaning of the claims in the Gobeli patent, my billing records reflect only 30 minutes of time discussing Apple's proposed claim constructions prior to the claim construction hearing in the case. My records further reflect that I spent five hours reviewing and commenting to Wong Cabello on the court's claim construction ruling after it

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1   issued. A copy of the claim construction order is attached hereto as Exhibit A. To the best of

2   my knowledge, none of the claim terms that were construed by the court are at issue in the

3   current case between Apple and Burst. In any event, I have not disclosed to Burst or its

4   attorneys, nor will I, any of the claim construction conversations I had with Mr. Brucculeri or

5   Mr. Miles, even though those conversations appear to me to have nothing to do with this case.

6   8.   Mr. Brucculeri also states, in paragraph 6 of his declaration, that his conversations

7   with me "involved disclosure of Apple confidential information." If he is asserting that I

8   received confidential technical information about Apple products or technology, that statement is

9   simply incorrect, as I have explained above. If he is asserting that he disclosed Apple's claim

10   construction strategy for the Gobeli case, then our conversations have no bearing at all on the

11   case between Apple and Burst, though of course I will continue to maintain the confidentiality of

12   those conversations.   If he is asserting that he disclosed some other kind of confidential

13   information, I do not know what it could be or how it could relate to the case between Apple and

14   Burst.

15   9.   Mr. Brucculeri makes a number of statements in paragraph 5 of his declaration

16   about what the Gobeli litigation involved. I agree with his first sentence, in which he states that

17   the case involved operating system interrupts and interrupt handlers. In the following sentences,

18   he states that the issue in the case included how USB and FireWire worked and interfaced with

19   Apple products (including the iPod), and the operating system, and that the "infringement

20   contentions in the case specifically alleged that Apple's products infringed through USB and

21   FireWire functionality including the use of storage devices connected through USB and

22   FireWire." I was not aware that USB, FireWire, or iPod were specifically involved in the case; I

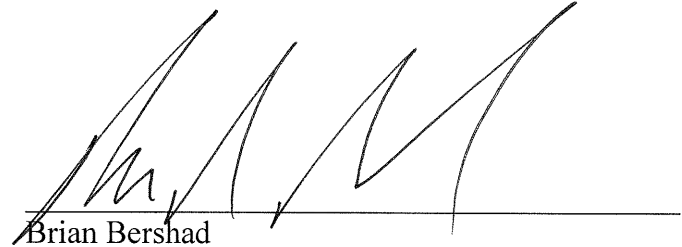23   was never shown or provided the infringement contentions to which Mr. Brucculeri refers; and I

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had no conversations or discussions with the Wong Cabello attorneys about USB, FireWire, or iPod. Thus, I learned nothing about USB, FireWire, or iPod as a result of the Gobelli engagement.

10.   In summary, I did not receive any of Apple's confidential technical information as part of the Gobeli engagement. Based on my knowledge of the Apple v. Burst case – which involves Apple's iTunes software running on a computer, the iPod, the iTunes Music Store, QuickTime, and other software applications – and based on everything I can recall from my engagement in the Gobeli case, I know of nothing that I was told by the Wong Cabello attorneys that has any relevance to the case between Apple and Burst.

Executed on this ___5th___ day of October, 2006, at Seattle, Washington.

I declare under the penalty of perjury under the laws of the United States of America that the foregoing is true and correct.

Brian Bershad

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Exhibit A

IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION

GOBELI RESEARCH, LTD.,	§	
Plaintiff,	§	
	§	
v.	§	
	§	CIVIL ACTION NO. 2:04-CV-149 (TJW)
(1) APPLE COMPUTER INC. AND	§	
(2) SUN MICROSYSTEMS, INC.,	§	
Defendants.	§	
	§	

MEMORANDUM OPINION AND ORDER

The court issues this memorandum opinion and order to resolve the parties' claim construction disputes.

1.   Introduction

The plaintiff, Gobeli Research, Ltd. ("Gobeli"), claims the defendants, Apple Computer Inc. ("Apple") and Sun Microsystems, Inc. ("Sun"), infringe two claims of the patent-in-suit, United States Patent No. 5,418,968 ("the '968 patent"). The parties filed claim construction briefs and the court held a *Markman* hearing. For the reasons explained more fully below, the court construes the disputed terms in accordance with the rulings made in this opinion.

2.   Description of the Technology

The present case involves technology related to "interrupts" and "interrupt handlers." Computers work with various peripheral devices, such as printers, modems, and fax machines. These devices communicate with the computers to exchange information or data using what is called an "interrupt." An "interrupt" is basically a signal to the computer from an external device informing the computer that the external device needs to communicate with, or requires service by, the computer. Typically, the computer has a dedicated input for receiving these interrupts. When the

CPU receives an interrupt, the CPU stops executing the program in progress and transfers control to another program, the "interrupt handler." "Interrupt handlers" are programs that are part of an operating system that handle or address the problems associated with the external devices.

The patent-in-suit is referred to as the Gobeli patent. The Gobeli patent is entitled "System and Method for Controlling Interrupt Processing." In the Abstract, the Gobeli patent states that it is "a system and method for controlling devices and processes using an interrupt system which is arranged to function as a state machine system." The design of the system is such that the interrupt handler has control of the underlying operating system, memory, and memory stack so as to be able to define and handle nested states.

In the Background of the Invention, the Gobeli patent explains that "[s]tate machine design is a technique of viewing a mechanical, electrical, or software system as a process which is driven between quiescent 'states' (in which it waits for something to happen) by external events, or stimuli." In classic state machine designs for software systems, "process" has a specific connotation expressed by various operating systems as "process," "task," "program execution" or some similar term. This means that the sequence of instructions comprising the software system have been assigned the resources (such as memory allocation, execution resources, access to operating system services) necessary for existence. With these resources, the software system can arrange to enter a quiescent state, to be scheduled upon the occurrence of some stimulus, and to maintain its existence over the duration of events.

The Background of the Invention explains that, in contrast to processors, interrupt handlers are executed at the request of the associated devices (printers, plotters, etc.). The device generates a hardware signal which interrupts the computer and causes control to be transferred to the interrupt

handler. The interrupt handler has the responsibility of determining the cause of the interrupt, of performing appropriate action to service the interrupt, and then restoring control to the interrupted process. Traditional interrupt handlers were viewed as being small, short-lived, and repeatedly invoked at random intervals. The Gobeli patent notes that many operating systems placed sever restrictions on the amount of time which an interrupt handler could consume in the servicing of an interrupt and permitted the interrupt handler almost no access to operating system services.

The Gobeli patent states that there was a need in the art for a system which responded in "real time" to stimuli and asynchronous demands. This system needed to be capable of functioning without the benefit of those resources normally provided by an operating system and must be reduced to practice in a manner consistent with those constraints placed on interrupt handlers by operating systems, including constraints on computer CPU time and stack memory usage. According to Gobeli, there was a further need in the art for a system that allowed computer control of several processes or devices, all working concurrently, and all requiring constant monitoring and supervision. Finally, Gobeli states that there was also a need for a system of controlling external systems, such as motors, that must be coordinated and that required control monitoring.

The Gobeli patent specification describes how the invention is an improvement over interrupt handlers in the prior art. In general, prior art interrupt handlers would receive an interrupt signal and then schedule the resources for running an entire routine associated with the external device. This prior methodology was very inefficient, as it might entail the use of a large quantity of processing resources to run, for instance, the entire "printer" routine to check, determine, and address an isolated problem with the printer (i.e. the printer is jammed or out of ink). In other words, the prior art interrupt handlers required the running of the device routine for every interrupt involving a specific

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external device. In general, the Gobeli patent describes a method for accommodating complex (and multiple) peripheral devices. The patent describes a way by which the interrupt handler uses a signal to identify a type of external process needing assistance and then associating that need with only the portion of code in the larger device routine necessary to address the request. In this manner, the computer is able to process multiple independent interrupts concurrently at a much greater speed while using less computer time and resources.

3.   General Principles Governing Claim Construction

"A claim in a patent provides the metes and bounds of the right which the patent confers on the patentee to exclude others from making, using or selling the protected invention." *Burke, Inc. v. Bruno Indep. Living Aids, Inc.*, 183 F.3d 1334, 1340 (Fed. Cir. 1999). Claim construction is an issue of law for the court to decide. *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 970-71 (Fed. Cir. 1995) (en banc), *aff'd*, 517 U.S. 370 (1996).

To ascertain the meaning of claims, the court looks to three primary sources: the claims, the specification, and the prosecution history. *Markman*, 52 F.3d at 979. Under patent law, the specification must contain a written description of the invention that enables one of ordinary skill in the art to make and use the invention. A patent's claims must be read in view of the specification, of which they are a part. *Id.* For claim construction purposes, the description may act as a sort of dictionary, which explains the invention and may define terms used in the claims. *Id.* "One purpose for examining the specification is to determine if the patentee has limited the scope of the claims." *Watts v. XL Sys., Inc.*, 232 F.3d 877, 882 (Fed. Cir. 2000).

Nonetheless, it is the function of the claims, not the specification, to set forth the limits of the patentee's claims. Otherwise, there would be no need for claims. *SRI Int'l v. Matsushita Elec.*

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Corp., 775 F.2d 1107, 1121 (Fed. Cir. 1985) (en banc). The patentee is free to be his own lexicographer, but any special definition given to a word must be clearly set forth in the specification. *Intellicall, Inc. v. Phonometrics*, 952 F.2d 1384, 1388 (Fed. Cir. 1992). And, although the specification may indicate that certain embodiments are preferred, particular embodiments appearing in the specification will not be read into the claims when the claim language is broader than the embodiments. *Electro Med. Sys., S.A. v. Cooper Life Sciences, Inc.*, 34 F.3d 1048, 1054 (Fed. Cir. 1994).

This court's claim construction decision must be informed by the Federal Circuit's recent decision in *Phillips v. AWH Corporation*, 2005 WL 1620331 (Fed. Cir. July 12, 2005)(en banc). In *Phillips*, the court set forth several guideposts that courts should follow when construing claims. In particular, the court reiterated that "the *claims* of a patent define the invention to which the patentee is entitled the right to exclude." 2005 WL 1620331 at *4 (emphasis added)(*quoting Innova/Pure Water, Inc. v. Safari Water Filtration Systems, Inc.*, 381 F.3d 1111, 1115 (Fed. Cir. 2004)). To that end, the words used in a claim are generally given their ordinary and customary meaning. *Id.* at *5. The ordinary and customary meaning of a claim term "is the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention, i.e. as of the effective filing date of the patent application." *Id.* This principle of patent law flows naturally from the recognition that inventors are usually persons who are skilled in the field of the invention. The patent is addressed to and intended to be read by others skilled in the particular art. *Id.*

The primacy of claim terms notwithstanding, *Phillips* made clear that "the person of ordinary skill in the art is deemed to read the claim term not only in the context of the particular claim in which the disputed term appears, but in the context of the entire patent, including the specification."

Id. Although the claims themselves may provide guidance as to the meaning of particular terms, those terms are part of "a fully integrated written instrument." *Id.* at **6-7 (*quoting Markman*, 52 F.3d at 978). Thus, the *Phillips* court emphasized the specification as being the primary basis for construing the claims. *Id.* at **7-8. As the Supreme Court stated long ago, "in case of doubt or ambiguity it is proper in all cases to refer back to the descriptive portions of the specification to aid in solving the doubt or in ascertaining the true intent and meaning of the language employed in the claims." *Bates v. Coe*, 98 U.S. 31, 38 (1878). In addressing the role of the specification, the *Phillips* court quoted with approval its earlier observations from *Renishaw PLC v. Marposs Societa' per Azioni*, 158 F.3d 1243, 1250 (Fed. Cir. 1998):

> Ultimately, the interpretation to be given a term can only be determined and confirmed with a full understanding of what the inventors actually invented and intended to envelop with the claim. The construction that stays true to the claim language and most naturally aligns with the patent's description of the invention will be, in the end, the correct construction.

Consequently, *Phillips* emphasized the important role the specification plays in the claim construction process.

The prosecution history also continues to play an important role in claim interpretation. The prosecution history helps to demonstrate how the inventor and the PTO understood the patent. *Phillips*, 2005 WL 1620331 at *9. Because the file history, however, "represents an ongoing negotiation between the PTO and the applicant," it may lack the clarity of the specification and thus be less useful in claim construction proceedings. *Id.* Nevertheless, the prosecution history is intrinsic evidence. That evidence is relevant to the determination of how the inventor understood the invention and whether the inventor limited the invention during prosecution by narrowing the scope of the claims.

Phillips rejected any claim construction approach that sacrificed the intrinsic record in favor of extrinsic evidence, such as dictionary definitions or expert testimony. The *en banc* court condemned the suggestion made by *Texas Digital Systems, Inc. v. Telegenix, Inc.*, 308 F.3d 1193 (Fed. Cir. 2002), that a court should discern the ordinary meaning of the claim terms (through dictionaries or otherwise) before resorting to the specification for certain limited purposes. *Id.* at **13-14. The approach suggested by *Texas Digital*–the assignment of a limited role to the specification–was rejected as inconsistent with decisions holding the specification to be the best guide to the meaning of a disputed term. *Id.* According to *Phillips*, reliance on dictionary definitions at the expense of the specification had the effect of "focus[ing] the inquiry on the abstract meaning of words rather than on the meaning of the claim terms within the context of the patent." *Id.* at *14. *Phillips* emphasized that the patent system is based on the proposition that the claims cover only the invented subject matter. *Id.* What is described in the claims flows from the statutory requirement imposed on the patentee to describe and particularly claim what he or she has invented. *Id.* The definitions found in dictionaries, however, often flow from the editors' objective of assembling all of the possible definitions for a word. *Id.*

Phillips does not preclude all uses of dictionaries in claim construction proceedings. Instead, the court assigned dictionaries a role subordinate to the intrinsic record. In doing so, the court emphasized that claim construction issues are not resolved by any magic formula. The court did not impose any particular sequence of steps for a court to follow when it considers disputed claim language. *Id.* at *16. Rather, *Phillips* held that a court must attach the appropriate weight to the intrinsic sources offered in support of a proposed claim construction, bearing in mind the general rule that the claims measure the scope of the patent grant. The court now turns to a discussion of the

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disputed claim terms.

A.   Claim 7 Is Invalid as a Matter of Law

Claim 7 of the Gobeli patent is an apparatus claim written almost entirely in means-plus-function format. While there are numerous disputed terms the parties in Claim 7, the Court will focus its analysis on just one means-plus-function clause:

- Means for reallocating processing resources unused by said specific portions to other specific portions as a function of task priority

The parties dispute the claimed function. Plaintiff asserts that the claimed function is "reallocating processing resources." Defendants disagree and have taken the position that the function is the entire claimed phrase: "reallocating processing resources unused by said specific portions to other specific portions as a function of task priority." The Court finds that Plaintiff is improperly broadening the function by ignoring clear limitations contained within the claim language. *See Lockheed Martin Corp. v. Space Sys./Loral, Inc.*, 324 F.3d 1308, 1319 (Fed. Cir. 2003). Under the broadest possible reading, the Court finds that the function would be "reallocating processing resources as a function of task priority."[1]

The Court will turn to the more difficult task of determining the structure associated with the recited function. Both parties recognize that the recited function is linked to a computer that runs a procedure. In other words, the structure linked to the claimed function is software.

The Federal Circuit has made clear that when software is linked to the disclosed function, the structure for performing the function is limited to the algorithm disclosed in the specification.

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[1] The Court notes that even under the more narrow reading of the function offered by Defendants, the end result would be the same. There is simply no algorithm described in the specification for performing the function, whether the function is broadly or narrowly construed. Thus, regardless of the function, Claim 7 suffers from a fatal deficiency.

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WMS Gaming, Inc. v. International Game Technology, 184 F.3d 1339, 1348-49; *Harris Corp. v. Ericsson Inc.*, 2005 WL 1845103, *9 (Fed. Cir. Aug. 5, 2005) (holding that "[a] computer implemented means-plus-function term is limited to the corresponding structure disclosed in the specification and equivalents thereof, and the corresponding structure is the algorithm."). Plaintiff states that the structure associated with the claimed function is "a microprocessor running a procedure call that sets aside resources, such as a memory area." This construction, however, does not set forth any algorithm for reciting the function. Instead, that construction attempts to adopt the type of structure that was specifically overturned in *WMS Gaming*. Moreover, the construction is so vague as to provide little assistance to this Court. *See Toshiba Corp. v. Lexar Media, Inc.* (2005 U.S. Dist. LEXIS 5213 (N.D. Ca. Jan. 24, 2005). Accordingly, the Court rejects Plaintiff's proposed structure.

Defendants offer no algorithm but instead assert that the Gobeli patent does not contain any description in the specification for performing the claimed function. The Court has reviewed the Gobeli patent in careful detail in search of an algorithm that performs either the function of "reallocating processing resources as a function of task priority" or "reallocating processing resources unused by said specific portions to other specific portions as a function of task priority." The Court is constrained to conclude that there is no description in the specification of any algorithm that performs either function.

Gobeli could have provided figures or flow charts that describe the algorithm. Gobeli also could have attached actual code to the patent that would set out the necessary algorithm. None of these options was exercised by the patentee.

Failure to provide the algorithm in the specification is fatal to Claim 7 of the Gobeli patent. Without the algorithm, the claim is indefinite and violates 35 U.S.C. § 112. *See Med. Instrumentation and Diagnostic Corp. v. Elekta AB*, 344 F.3d 1205, 1210 (Fed. Cir. 2003) (noting that if the specification is not clear as to the structure that the patentee intends to correspond to the claimed function, then the patentee is impermissibly attempting to claim in functional terms unbounded by any reference to structure in the specification.). Thus, this Court finds that Claim 7 of the Gobeli patent is invalid as a matter of law.

B.   Construction of Claim 11 of the Gobeli patent

The parties dispute nearly every term in claim 7. The Court does not believe that every word in the Claim 7 requires construction and will therefore only construe the following nine phrases or terms: "interrupts," "independent processes,""defined routines," "control processing," "memory stack," "assigned to each of said processes," "concurrently, but independently, processing within said computer specific portions of invoked ones of said routines for each of a plurality of said processes," "reallocating processing resources unused by said specific portions to other specific portions," and "as a function of priority."

i.   *Interrupts*

Plaintiff Gobeli and Defendant Apple argue that an interrupt is " a hardware signal which literally interrupts the computer and causes control to be transferred to the interrupt handler." Defendant Sun believes the proper construction of "interrupt" is "one of a plurality of hardware signals, wherein each such signal corresponds to an external process and controls which of a plurality of defined routines is executed by the interrupt handler."

Plaintiff's and Apple's definition is taken verbatim from the specification at Col. 1, ll. 37-40.

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Thus, the Court agrees with Gobeli's and Apple's proposed construction.

   ii. *Independent processes*

Plaintiff contends that "independent processes" means "devices external to the computer." Sun proposes that the term should be construed as "processes under the control of distinct (separate) state machines." Apple contends that the terms means "a group of coordinated devices (i.e. tasks) under the control of peripheral controllers, where the devices in the groups generate interrupts. Each group is independent of each other group."

With respect to the parties' positions, they appear to agree that "independent processes" is a special term to which no ordinary meaning attaches. As a result, the parties each resort to the specification for guidance. The parties also appear to agree that the independent processes are external to the computer.

The Gobeli patent states that "the interrupt handler should be capable of overseeing such devices . . . Each of these independent device subsystems should be viewed as an 'external process' with its own unique context." Gobeli patent, Col. 4, ll. 67 – Col. 5, ll. 4. Further, the patentee states "[t]he combined motion of each subsystem is viewed as a process . . ." *Id*. at Col. 6, ll. 23-24. "The motion of each subsystem is, in effect, an 'external process.'" *Id*. at Col. 11., ll. 58-60. Thus, the Gobeli patent explains that independent processes are not solely limited to devices, but could also be device subsystems.

Sun's proposed construction parrots the claim term itself and includes the additional limitation of a "state machine." The Court rejects any "state machine" limitation. Certain claims of the Gobeli patent expressly mention a "state machine" limitation; however, Claim 11 does not. Moreover, although Sun asserts that the only embodiment in the Gobeli patent is a state machine

interrupt handler, the specification suggests that an interrupt handler is not always equivalent to a state machine. *See* Gobeli patent, Col. 11, ll. 60–62 ("the interrupt handler services two external processes, each of which requires a separate state machine.") *Id.* at Col. 11, ll. 60–62.

Apple includes in its definition the limitation that the devices must be controlled by a "peripheral controller." Just as with Sun's construction, this is an example of the preferred embodiment. The Court finds that peripheral controllers and state machines are additional limitations related to the preferred embodiment and therefore refuses to incorporate them into the claims. *See Comark Communications, Inc. v. Harris Corp.*, 156 F.3d 1182, 1186 (Fed. Cir. 1998)(cautioning against reading limitations from preferred embodiment into claims).

Accordingly, the Court finds that "independent processes" are "the part of the devices or device subsystems external to the computer that independently generate interrupts."

   iii. *Defined routines*

Gobeli asserts that this phrase should be given its plain and ordinary meaning. Gobeli argues that the term should be construed to mean "one or more program instructions associated with an interrupt cause." Defendants contend that the proper construction is "program instructions that, when executed, remedy a specific interrupt cause." Both sides agree that the defined routines are program instructions, but Defendants assert that the additional limitation "remedy" must be part of the claim term. The Court disagrees.

The Gobeli patent does not require the defined routines to remedy the interrupt cause. Instead, the patent uses the word "service." *See, e.g.*, Gobeli patent, Col. 1, ll. 42–43. This Court refuses to incorporate limitations into the claims that do not appear in the specification or in the claims. The patentee at no time limits the claimed invention to remedying the interrupt cause.

However, the Court's analysis does not end at whether or not remedy must be part of the construction. In subsequent clauses in Claim 11, the patentee references specific portions of the routines that are associated with a process. Thus, the defined routines are not tied to the stimulus or interrupt cause, but are instead tied to the device or device subsystem. Instead, it is the "specific portions" of the defined routines that are tied to the actual interrupt cause or stimulus. Accordingly, the court construes "defined routines" as "program instructions that are associated with a device or device subsytem."

iv.   *Control processing*

The next term to be construed is "control processing." Gobeli contends that "control processing" means "execution of a routine or part of a routine that controls the process (device) sending the interrupt." Sun contends that the correct construction of control processing is "advancing the state of an independent process controlled by a state machine to a new state, to a sub-state, or from a sub-state."

Once again, Sun attempts to read a "state machine" limitation into the claims. The Court has rejected this approach and will not unduly limit the claims to the preferred embodiment. Control processing is a broad term and neither the claim language nor the specification limits its construction. Accordingly, "control processing" means "executing program instructions that control a process."

v.   *Memory stack*

The parties appear to agree that a memory stack is a term of art that describes a specific type of storage arrangement. According to Gobeli, "memory stack" is a "group of storage locations, within said computer, structured to store data on a last-in first-out basis." Apple contends that

"memory stack" is "a linear list, where accesses, insertions, and removals are made at one end of the list." Sun generally agreed with Gobeli's construction as long as the construction was limited to computer memory.

The Court agrees with Gobeli and Sun. Accordingly, "memory stack" is "a group of storage locations located in the computer's memory that is structured to store data on a last-in first-out basis."

vi. *Assigned to each of said processes*

Gobeli contends that this phrase should be given its ordinary meaning and therefore proposes the construction: "an area of a memory stack is allocated to the abstract device." Sun contends the phrase should be construed as "permanently allocated so that the information contained therein persists across interrupts."

The Court makes no determination as to whether these proposed constructions are litigation inspired positions. However, it is clear that the parties have engaged in behavior this Court has seen many times. The plaintiff is attempting to broaden the construction and the defendant is seeking to limit it. In both cases, the Court must reign in the parties and determine the actual construction appropriate for the phrase.

In this case, the principal battle is over permanent allocation. Sun contends that the assignment of the memory stack must always be permanently allocated and Gobeli asserts that it need never be permanently allocated. Neither side is completely correct.

Gobeli's principle citation is for its position for not requiring permanent allocation is "the external process can be assigned a transient stack area for temporary use . . ." Gobeli patent, Col. 13, ll. 8-9. However, a few lines later, the specification makes clear that after a request to call a

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substate, the stack area must be made permanent. *Id*. at Col. 13, ll. 9-11. Throughout the patent, the

specification references temporary and permanent storage because the process needs both. *See id.*

at Col. 3, ll. 34–45; Col. 5, ll. 30–35 ("the crucial realization is that an interrupt handler requires two

radically different stack areas. One area must be permanent . . . The other area must be transient.");

Col. 5, ll. 45–49. Thus, the patent makes clear that while all stack areas associated with a process

need not be permanently assigned, at least one part of a stack area must be permanent.

Accordingly, the Court construes "assigned to each of said processes" to mean "permanently

allocating at least one part of the memory stack to a process."

> vii.   *Concurrently, but independently, processing within said computer specific portions of invoked ones of said routines for each of a plurality of said processes*

Claim 11 includes the limitation "concurrently, but independently, processing within said

computer specific portions of invoked ones of said routines for each of a plurality of said processes."

Apple and Sun contend that this phrase means "for each of two or more independent processes,

processing specific portions of the invoked routines in an overlapped fashion during the same

specified interval of time, where the processing of the specific portions is not contingent upon one

another." Gobeli believes that this phrase means "the independent performance of two or more data

processing tasks within a specified interval." Again, neither side is completely correct.

During the *Markman* hearing, the parties generally agreed with what "concurrently" meant

in the world of computer processing, but could not reach agreement as to how to define the term.

Basically, both parties agree that if there is a single processor, the computer cannot process more

than one set of instructions at exactly the same time. Instead, the computer splits the time into very

small increments and cycles between different sets of instructions. The parties agreed, however, that

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if there were multiple processors, then a computer could execute more than one set of instructions at exactly the same time.

The largest area of disagreement concerned whether there must be overlap between the specific portions of the invoked routines or whether these portions could be run *in seriatim* as long as they are executed within a specified time interval. Contrary to the Plaintiff's argument, serial processing does not comport with the specification or the general understanding of the term "concurrently."

Based on the foregoing, the Court construes the phrase "concurrently, but independently, processing within said computer specific portions of invoked ones of said routines for each of a plurality of said processes" means "the independent performance of two or more specific portions of the invoked routines wherein at least one part of the two portions are run in an overlapping fashion."

viii.   *Reallocating processing resources unused by said specific portions to other specific portions*

Gobeli contends that the phrase "reallocating processing resources unused by said specific portions to other specific portions" should be given its plain and ordinary meaning and asserts that examples from the specification indicate that "reallocating" means reusing, clearing, and freeing up. Defendants assert slightly different constructions, with Apple proposing that the phrase means "with respect to two or more processing resources that are allocated to but unused by the concurrently processing specific portions, reallocating those unused resources to other specific portions of the defined routines." Sun contends the phrase means "reassigning two or more resources unused by specific portions corresponding to an interrupted task to other specific portions corresponding to an

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interrupting task."

While the Court generally agrees with Plaintiff that this term should be given its plain and ordinary meaning, the Plaintiff's construction does not provide a clear definition of what that plain and ordinary meaning is. The Court is persuaded by the Defendants' argument that the plain and ordinary meaning of "reallocating" necessarily requires a first assignment of "something" and then a reassignment of that "something."

The claim language specifies exactly what is reallocated – the processing resources allocated to, but "unused" by, the specific portions of the invoked routines. The specific portions are those referenced in the previous limitation, which specifies "concurrently, but independently, processing within said computer, specific portions of said invoked routines."

Thus, in order to "reallocate" the processing resources unused by the specific portions, the claim necessarily requires the processing resources to have been previously allocated to the specific portions. Thus, the Court is persuaded that the phrase "reallocating processing resources unused" means that processing resources were initially allocated to, but unused by, the specific portions of the invoked routines.

Accordingly, the Court finds that the phrase "reallocating processing resources unused by said specific portions to other specific portions" means "with respect to processing resources that were previously allocated to, but unused by, specific portions of defined routines, reallocating those unused resources to other specific portions of defined routines."
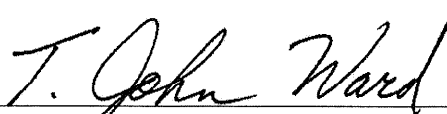
      ix.   *As a function of priority*

Plaintiff contends that this phrase means "using a priority scheme to determine a course of action" and asserts that the priority can be based on either time or level of importance. Apple

contends that the phrase means "based on the level of importance assigned to 'other specific portions' relative to 'specific portions.'" Sun's construction is "based on the relative priorities of the defined routines."

The priority language is not limited to the level of importance. A plain reading of the term and a general understanding of the goal of the patented invention would allow for both level of importance and time priority. One of ordinary skill in the art would recognize that if the level of importance of two interrupts was the same, the first in time would be processed before the second.

Further, there is no modifier before "priority" in Claim 11. This is different from other claims (see claims 1, 7, 15, and 20). Because there is no modifier in Claim 11, the court will not read additional limitations into the claim. "As a function of priority" will be given its full breadth of meaning. Accordingly, the Court finds that "as a function of priority" means "based on either time or level of importance."

SIGNED this 26th day of August, 2005.

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T. JOHN WARD
UNITED STATES DISTRICT JUDGE

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